

Bulletin

of the

Chicago Academy of Sciences

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**Metagynellidae, a New Family of Uropodine Mite,
with the Description of *Metagynella parvula*,
a New Species from Tree Holes**

Joseph H. Camin

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The Bulletin of the Chicago Academy of Sciences was initiated in 1883 and volumes 1 to 4 were published prior to June, 1913. During the following twenty-year period it was not issued. Volumes 1, 2 and 4 contain technical or semi-technical papers on various subjects in the natural sciences. Volume 3 contains museum reports, descriptions of museum exhibits, and announcements.

Publication of the *Bulletin* was resumed in 1934 with volume 5. It is now regarded as an outlet for short to moderate-sized original papers on natural history, in its broad sense, by members of the museum staff, members of the Academy, and for papers by other authors which are based in considerable part upon the collections of the Academy. It is edited by the Director of the Academy with the assistance of a committee from the Board of Scientific Governors. The separate numbers are issued at irregular intervals and distributed to libraries, scientific organizations, and specialists with whom the Academy maintains exchanges. A reserve is set aside for future need as exchanges and the remainder of the edition offered for sale at a nominal price. When a sufficient number of pages have been printed to form a volume of convenient size, a title page, table of contents, and index are supplied to libraries and institutions which receive the entire series.

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Metagynellidae, a New Family of Uropodine Mite, with the Description of *Metagynella parvula*, a New Species from Tree Holes

Joseph H. Camin

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In a paper entitled "Generi nuovi de acari" by Trouessart and Berlese (1919), Berlese briefly described the genus *Metagynella*, placing it in the family Uropodidae. He designated the type as *Metagynella paradoxa* and diagnosed the genus as follows:

"Metagynella Berlese n. gen. (Uropodidae).—Pedes antichi ambulacro destituti. Foem. scuto genitali magno, in medio ventre, post quartos pedes insito, pedes eosdem antichi non attingenti; sternum usque post quartos pedes scuto singulo protecto. Scutum dorsuale integrum, totum dorsum occupans. Myrmecophili.

Species typica *M. paradoxa* n. sp.; in nidis *Camponoti*, S. Vincenzo (Pisis)."

No further detailed description of the type species or figures accompanied this brief generic diagnosis.

Miss Flora E. Gorirossi, who has studied the Berlese collection in Italy, has informed me that no drawings of this mite are present in Berlese's workbook. There are two female specimens of *M. paradoxa* in the collection. Miss Gorirossi was able to make out much of the detail of the ventral surface of the holotype specimen and this she drew with the aid of a camera lucida. Her drawing of *M. paradoxa* is reproduced here (Pl. I, 1).

As the family Uropodidae was raised to the rank of cohort and subdivided into many families, the genus *Metagynella* was apparently overlooked and now fits none of the currently accepted family concepts. This

mite is significantly different from all other mites of the cohort Uropodina, because of the unique position of the female genital aperture, and, therefore, it is proposed that a new family be erected to include this genus.

Family Metagynellidae new family

Diagnosis. Body minute, smooth, oval. Epigynial shield of female large, located on ventral opisthosoma behind coxae **IV**. Male genital aperture small, between coxae IV. Camerostome present; coxae I very close together, but not contiguous. Foveolae pedales well-developed. Stigmata between coxae II and III. Dorsum covered by median dorsal shield, which extends over edge of body and covers a narrow border of the venter posteriorly, fusing with parapodal shields anteriorly on dorsum; independent dorsal marginal shields absent. Legs I lacking pretarsi and claws. Chelicerae very long; fixed digit almost one-third longer than movable digit.

Type genus. *Metagynella* Berlese, 1919.

A large series of mites, representing a second species in the genus *Metagynella*, was collected from basal tree holes in basswood trees in Lake Avenue Woods north of Des Plaines, Illinois during the spring and summer of 1953. The most striking features of this form are its extremely small size and the unique posterior position of the female epigynial **shield**.

While searching through the berlesate from tree-hole mold samples for the trachytine mite, *Dyscritaspis whartoni*, large numbers of these uropodines were collected, but, because of their minute size, they were thought to be nymphal forms and were only casually noticed. It was only the chance observation of an adult female, lying on its side with the epigynial shield opened at right angles to the body, that finally invited closer scrutiny and revealed the true nature of this species.

The Metagynellidae possess many characters (i.e. well-developed pedal foveolae, stigmata between coxae **II** and **HI**, presence of the camerostome, etc.) that are usually associated with the more highly evolved **of** the uropodine mites. For this reason the posterior position of the genital aperture, on the opisthosoma, must be regarded as a secondary condition **and not one that is primitive. This character** may be reasonably interpreted as being correlated with reduction in body size.

If it can be assumed that *Metagynella* has evolved from a larger, typical uropodine species, it is conceivable that a reduction in size might **be of some survival value, reducing competition for food** and "lebensraum" or permitting a greater number of individuals to exist in a limited habitat

niche. If during this reduction in body dimensions, the genital aperture and epigynial shield were restricted to the intercoxal region of the body, where they occur in other uropodines, it would be expected that this aperture and shield would become correspondingly reduced. Unless the eggs produced by these mites also became smaller, oviposition would be hampered or perhaps impossible. Natural selection would operate against such forms and they would probably become extinct or at least reduced in numbers.

In *M. parvula* the eggs are large and could not emerge through an intercoxal aperture in so minute an animal. However, with the opisthosomal position of the genital aperture, this opening is enabled to be comparatively large and permits the oviposition of quite sizeable eggs. Therefore, it is suggested that the unique posterior position of the genital aperture in *Metagynella* is correlated with the minuteness of this form and is a fortuitous adaptation permitting the production of comparatively large eggs by this exceedingly small mite.

Metagynella parvula has been found only in tree holes. It is often associated with mites of the trachytine genera *Polyaspis* and *Dyscritaspis*, but is apparently not as limited in its habitat requirements as these forms. Whereas *Polyaspis* and *Dyscritaspis* appear to be restricted to basal tree holes (Gamin, 1953), *M. parvula* has been recovered from the basal holes and rotted debris-filled holes more than twelve feet from the ground. It has been collected in tree-hole mold from North Carolina to Arkansas and north to Wisconsin and northern Michigan.

Although three nymphal stages are a common occurrence in the Uropodina, only two have been observed from *M. parvula*. No forms, structurally suggesting a phoretic habit, have been recovered from tree-hole mold and none of these mites have been seen on the bodies of other arthropods.

Metagynella parvula new species

ADULT FEMALE, Plate I, 1 and 2. Body very minute, averaging 300 x 225 μ ; smooth, oval, well-sclerotized; yellowish-brown in color. Some critical measurements are presented in Table I.

Venter. Epigynial shield large, trapezoidal with rounded corners; located on opisthosoma just behind coxae IV. Sternal shield narrow, elongate and complex; extending from posterior margins of coxae I to genital aperture, with apparently sclerotized internal apodemes making it difficult to observe surface structures anteriorly and in region of coxae IV. Anterior margin of sternal shield formed as a bridge across sternum, fused at lateral margins with endopodal shields. Endopodals fused, extending along inner borders of coxae and posteriorly around

coxae IV to fuse with parapodal and peritremal shields. Parapodals and peritremals fused anteriorly and dorsally with dorsal shield, posteriorly with ventro-anal shield. Ventro-anal shield continuous around epigynial shield and anteriorly to surround sternal shield between sternal and endopodals. Remainder of sternal shield broadest at origin under sternal bridge, narrowing slightly in region of coxae II, broader between coxae II and III, tapering to a narrow constriction between coxae IV and expanding behind coxae IV to form a narrow perigenital rim around three

Table I. Measurements of the Female of *Metagynella parvula* n. sp. and Estimated Data for *M. paradoxa* Berlese.

Part measured	<i>M. parvula</i>			<i>M. paradoxa</i>	
	<i>n</i>	\bar{x}	<i>s</i>	Range observed	
Body:					
length	25	301.0 μ	9.6 μ	288.0-321.1 μ	.....
width	25	223.7	8.4	204.2-240.1	.....
Sternal shield:					
length	25	137.5	6.9	129.6-142.8	128.9 μ
bridge	25	61.0	3.6	57.4- 65.1	51.9
constriction	25	12.2	2.9	10.1- 15.6	22.4
Epigynial shield:					
length	25	63.8	1.9	60.9- 67.1	64.1
least width	25	39.0	5.5	34.1- 45.8	38.5
greatest width (B)	25	80.3	6.5	75.0- 86.7	77.0
Distance between:					
ventral setae					
I (A)	25	34.1	10.6	25.1- 43.3	41.6
adanal setae	25	20.9	2.2	18.9- 23.5	29.7
Ratio of (A/B):	25	(.426)	(.063)	(.326-.554)	(.540)
Legs (pretarsi omitted):					
I	10	141.5	4.4	137.5-144.5	.....
II	10	157.2	4.9	152.9-160.8	.....
III	10	133.1	9.0	126.1-141.7	.....
IV	10	164.8	6.6	158.8-169.2	.....
Chelicerae:					
fixed digit	10	23.4	2.1	21.6- 24.6	'.....
movable digit	10	17.9	2.3	15.6- 19.1	.....

sides of the genital aperture. Anterior portion of rim with two projections from posterior margin, apparently serving as "stops" to trapdoor-like epigynial shield. Sternal setae I minute, located close together on central portion of sternal bridge; sternal pores I much elongated, at anterior margins of coxae II on sternal shield proper. Comparison with sternal region of male indicates that sternal setae II of the female are lacking. Sternal pores II not observed. Sternal setae III moderately long,

simple, at level of posterior margins of coxae II; pseudosternal setae similar to setae III, at anterior margins of coxae IV, anterior to sternal shield constriction; metasternal setae minute, at anterolateral margins of perigenital rim. A pair of lyriiform pores, apparently sternal pores III, located behind coxae IV, slightly behind forward edge of epigynial shield, near endopodal shields, on ventro-anal shield. A raised ridge extends from pseudosternal setae to metasternals across constriction of sternal shield from sternal shield proper to perigenital rim (Pl. II, 7). Stigmata between coxae II and III; peritremes extending forward to anterior margins of coxae I. Anal pore round with sclerotized rim; closed by two elongate plates flanking longitudinal aperture; with membranous sac extruding when plates are opened; flanked by a pair of moderately long adanal setae even with middle of anus; postanal seta lacking (Pl. II, 2). Ventro-anal shield usually with six pairs of long, fine setae in addition to adanal setae; first pair behind epigynial shield, usually separated from each other by a distance less than half the greatest width of the epigynial shield; a pair of setae opposite posterior corners of epigynial shield; a pair anterior and lateral to these; another pair between first ventral setae and anus; two pairs along posterolateral margins of shield. Tritosternum (Pl. II, 5) with base usually hidden under anterior edge of sternal bridge; a single, fine lacina, usually with two pairs of minute setules. Foveolae pedales well-developed, connected with each other and with the camerostome anteriorly. Venter completely sclerotized except for camerostome, foveolae pedales and a narrow band of soft cuticle separating ventral sclerotization from ventral overlap of dorsal shield. The shields described are distinguishable from each other only because of their variations in thickness. There is no soft integument separating shields, except as indicated, and most of these appear actually to be fused to each other (Pl. I, 2).

Dorsum. Dorsal shield covering entire dorsum; fused with peritremal and parapodal plates anteriorly; extending over edge of body along lateral and posterior margins to form a narrow band ventrally; projecting as a thin hood anteriorly, concealing gnathosoma from above. Dorsal hood (Pl. II, 10) with a thickened, longitudinal median ridge; with a pair of strong setae at the base of the ridge and a pair of weaker setae extending from a pair of pits on the anterior margin. No free dorsal marginal shields. Dorsal shield with an irregular row of moderately long, simple setae along anterior edge, directly behind hood; a pair of strong setae near posterior margin; remainder sparsely clothed with long filamentous setae, which are often lost from the high central part of the dorsum when the specimens are mounted on slides. Dorsum usually with a central horizontal depression, so that the dorsal surface forms a slight anterior and posterior hump (Pl. I, 3).

Gnathosoma. Gnathosomal setae moderately long, simple, located behind and slightly laterad to row of hypostomal setae. Hypostomal setae in straight longitudinal rows; proximal setae similar to gnathosomal setae; median setae short; distal setae very strong, thick and long, on knob-like projections of the hypostome. Three rows of minute hypostomal teeth along deutosternum between gnathosomal setae and median hypostomal setae. Corniculi strong, short, slightly curved and pointed, located laterad and posterior to knob-like projections of hypostome. Pedipalps five-segmented, excluding the palpal coxae. Palpal trochanter with a very long, strong, barbed seta ventrally on the distal margin; tarsus with two-tined seta at base and many long, simple setae of varying lengths, some two or three times the length of the segment; other segments with few moderately long, simple setae (Pl. II, 1 and Pl. I, 2). Chelicerae long, with muscle insertions in posterior third of dorsal wall (Pl. I, 5) ; movable digit approximately three-quarters the length of fixed digit; movable digit with pointed, recurved tip and one strong tooth; fixed digit with a strong tooth opposing that of movable digit and two small teeth on harpoon-like tip beyond the end of movable digit (Pl. II, 4). Tectum with two broad lateral lamellae with serrate margins, extending to distal margins of palpal femora; and a long, slender, tongue-like median projection, clothed with minute denticles, extending beyond distal margins of palpal tibiae. Tectum covering a pair of slender, blunt, salivary styli extending from palpal coxae to the middle of palpal femora (Pl. II, 8) .

Legs. Legs of moderate length, approximately one-half the length of the body. Legs IV longest, slightly longer than II; leg III shortest, slightly shorter than leg I, if pretarsus is omitted (Pl. I, 2 and 3). Tarsus I lacking pretarsus, claws and caruncle; with many long, simple, tactile setae of varying lengths, terminal seta more than twice the tarsal length; with a clump of club-like or sac-like, possibly chemo-sensitive, setae at tip just dorsal to terminal seta (Pl. II, 9) . Legs II (Pl. II, 11), III and IV with well-developed pretarsi. Pretarsus with two strong, re-curved claws; a membranous, pointed, ventro-median projection; and a triangular caruncle with a concave distal margin. Setae of legs usually short and simple; of tarsi II, III and IV, usually very short, thick and spine-like. Femur of leg II enlarged, with prominent, rounded, ventral knob.

ADULT MALE, Plate I, 4 and 5. Body very similar to and only slightly smaller than female, averaging 290 x 230 μ . Some measurements are given in Table II.

Venter. Genital aperture located between coxae IV; covered by two genital plates, each of which is usually slightly wider than long. Pos-

terior genital plate somewhat pentagonal, larger than rounded anterior shield (Pl. II, 3). Anterior margin of sternal shield raised as a narrow bridge as in female; sternal shield proper with two mounds behind bridge; margins of shield almost parallel between coxae II, becoming wider between coxae II and III, tapering gradually and grading insensibly into the ventro-anal shield just posterior to genital aperture. Lateral

Table II. Measurements of All Stages, except the Female, of
Metagynella parvula.

MALE				
Part measured	<i>n</i>	\bar{x}	<i>s</i>	Range observed
Body:				
length	15	288.4 μ	8.6 μ	276.0-312.8 μ
width	15	228.2	7.2	217.1-242.9
Anterior genital plate:				
length	15	15.0	2.2	13.6- 17.4
width	15	16.5	2.3	14.5- 18.0
Posterior genital plate:				
length	15	17.0	2.8	14.3- 19.1
width	15	21.4	1.9	20.0- 23.3
LARVA				
Body:				
length	2	181.7	....	181.2-182.2
width	2	124.7	....	123.3-126.0
PROTONYMPH				
Body:				
length	14	222.3	5.5	224.5-259.4
width	14	166.2	8.6	154.6-184.0
DEUTONYMPH				
Body:				
length	15	268.7	6.2	259.4-280.6
width	15	206.2	7.9	189.5-219.0

margins of sternal shield thickened from just behind anterior mounds to anterior margins of genital aperture; two shorter sclerotized ridges within these raised margins, extending from between coxae II and III to just before genital aperture. Internal armature in vicinity of coxae II and IV similar to that of female. Sternal setae I minute as in female, placed on sternal bridge, but more widely separated than in female; sternal pores I on raised mounds of sternal shield; sternal setae II moderately long, on margins of shield, behind anterior mounds; sternal setae III similar to II, with associated pores that are not typical sternal pores

in structure, located between coxae II and III; pseudosternal setae minute, slightly behind anterior margins of coxae IV and anterior genital plate; metasternals small, behind genital aperture, at posterior margins of coxae IV. Setae I, pores I, setae III, the pseudosternal and metasternal setae of the male are similar in size and position to their homologues in the female, thus indicating that sternal setae II are absent in the female. A pair of lyriform pores, possibly sternal pores III, located on the ventroanal shield behind coxae IV as in female. Tritosternum, anus, stigmata and peritremes, foveolae pedales, remaining chaetotaxy and ventral sclerotization similar to those of female (Pl. I, 4).

Dorsum. (Pl. I, 5) and *gnathosoma* (Pl. I, 4) as in female.

Legs. Legs very similar to those of female excepting the femora of legs II. Femur II enlarged as in female, but with long, articulated, thumblike process in place of knob; with a shallow groove on femur, extending diagonally from base of thumb process; with an elongated callus opposing thumb process, distal to groove and a small crescentic callus lateral to groove; a long, simple seta at proximal end of elongate callus and a minute seta lateral to distal margin of crescentic callus (Pl. II, 6 and Pl. I, 4).

LARVA, Plate III, 1 and 2. Body very small, averaging 180 x weakly sclerotized; white in color. Body measurements based on only two specimens are recorded in Table II.

Venter. Sternal shield discernible only because of difference in texture from remainder of venter, which is striated. Sternal setae I minute, placed on a small oval mound between coxae I and II; two minute pores between anterior margins of coxae II may be sternal pores I, but not typically lyriform; sternal setae II of moderate length, between coxae II and III; sternal setae III similar to II, at posterior margins of coxae III. Anus placed on a rounded, posterior projection, flanked by a pair of long, simple, adanal setae; no postanal seta. Ventral region with three or four short setae on raised bases; a pair of long setae in line with adanal setae, flanked by a pair of elongate pores, halfway between posterior margins of coxae III and tip of body; a pair of small round pores between these long ventral setae and coxae III. Margins of body with approximately ten pairs of minute setae. Tritosternum as in adults. Stigmata and peritremes not observed. Foveolae pedales and camerostome not developed (Pl. III, 1).

Dorsum. Median dorsal shield covering two-thirds of dorsum, with two posterior notches, giving the shield a roughly sagittate shape, and a longitudinal median furrow as in the trachytine mites. A pair of short setae approximately midway on the lateral margins of the shield and

another pair anterior to these, but usually not on the shield; a pair of minute setae near the anterior margins of the shield; a pair of moderately long setae on the posterior lobe of the shield; a pair of minute setae and three pairs of moderately long setae on narrow ridges bordering longitudinal furrow. Margins of median dorsal shield pitted. A pair of small, oval, lateral dorsal shields posterior and lateral to median shield; a very broad, but short posterior dorsal shield covering posterior margin of body; these shields pitted, but lacking setae. A pair of minute setae between lateral dorsal shields and posterior lobe of median dorsal shield; a pair of short setae between median dorsal shield and posterior shield; and a pair of moderately long setae between lateral and posterior shields (Pl. III, 2).

Gnathosoma. Gnathosoma as in female, but lacking gnathosomal or proximal hypostomal and median hypostomal setae and long setae at anterior ventral margins of palpal trochanters (Pl. III, 1 and 2).

Legs. Three pairs of legs, similar to legs I, II and III of female, but with unexpanded femora (Pl. III, 1 and 2).

PROTONYMPH, Plate III, 3 and 4. Body averaging $240 \times 165\mu$; weakly sclerotized; white or gray in color. Some body measurements are presented in Table II.

Venter. Sternal shield narrow, elongate, extending from anterior margins of coxae II to posterior margins of coxae III. Sternal setae I minute, at anterior corners of shield; second pair of setae longer, between coxae II and III; setae III similar to II, on level with middle of coxae III; sternal pores I on lateral margins of shield behind setae I; slit-like, but not typically lyriiform, pores associated with setae II and III. Sternal shield with irregular transverse rows of pits. Anal shield a transverse oval with three pairs of minute mounds along posterior margin; anus on a raised projection, flanked by a pair of moderately long adanal setae. Soft integument of venter striated. Flanking anal shield is a pair of moderately long setae on raised bases; anterior to anal shield is a pair of moderately long setae flanked by a pair of small setae and a pair of slit-like pits; just behind coxae IV is a row of two pairs of slit-like pits flanked by a pair of round pores with slit-like openings; behind these another pair of slit-like pits and between these pits a pair of short setae. Tritosternum as in female. Stigmata between coxae II and III, with peritremes extending anteriorly beyond posterior margins of coxae II and posteriorly to rear margins of coxae III. Foveolae pedales and camerostome rudimentary and unconnected (Pl. III, 3).

Dorsum. Median dorsal shield large, rhomboidal, covering more than two-thirds of dorsum; relatively smooth, with pitted margins; with five

pairs of short setae along mid-line and a pair of slit-like depressions or pores anterior to second pair of setae. Lateral dorsal shields relatively large, elongate, bordering posterolateral margins of median dorsal shield; pitted, with one short seta on posterior margin of each. Posterior dorsal shield short and very broadly oval; pitted, without setae. A pair of short, strong setae with associated slit-like depressions between median and posterior dorsal shields; a pair of long setae behind posterior shield; approximately eight pairs of short submarginal setae, with five pairs of slit-like depressions; and ten to fourteen pairs of short marginal setae. Soft integument around shields striated (Pl. III, 4).

Gnathosoma. Gnathosoma very similar to that of adult, but with strong seta on palpal trochanter not fully developed (Pl. III, 3 and 4).

Legs. Legs similar to those of female except that femora are not enlarged (Pl. III, 3 and 4).

DEUTONYMPH, Plate III, 5 and 6. Body averaging $270 \times 205\mu$; very similar in appearance to adults; gray to yellowish-brown in color; well-covered with weakly sclerotized shields. Some body measurements are recorded in Table II.

Venter. Anterior margin of sternal shield formed as a bridge as in adult; bearing minute first sternal setae; fused laterally with endopodal shields, which are fused with each other along margins of coxae, with relatively large metapodal shields, ventro-anal shield, parapodal and peritremal shields. Remainder of sternal shield broadest under sternal bridge, tapering posteriorly to its narrowest width between coxae IV and becoming broader behind coxae IV; with truncate posterior margin; bearing sternal pores I and a pair of deep pits on lateral margins behind sternal bridge; sternal setae II between coxae II; setae III and pseudosternals with associated pits, between coxae II and III and coxae III and IV respectively; and metasternal setae with sternal pores III at posterior margins of coxae IV. Ventro-anal shield mostly sub-integumentary, appearing above the surface of the integument as small irregular platelets only around bases of five pairs of short ventral setae and as two larger patches flanking anus. Anus on slightly raised projection with two pairs of moderately long adanal setae and sometimes a very minute postanal seta. A pair of minute setae located in soft integument between sternal and ventral shields. Stigmata as in adult; peritremes extending to anterior margins of coxae II. Foveolae pedales and camerostome well-developed and interconnected. Tritosternum as in adult, with base hidden under sternal bridge. Soft integument between ventral shields and narrow ventral band of dorsal shield and integument covering most of ventroanal shield striated (Pl. III, 5).

Dorsum. Dorsal shield covering entire dorsum; fusing anteriorly with parapodal and peritremal plates; extending in a narrow band onto venter along lateral and posterior margins as in adult. Dorsal hood poorly developed, without thickened median ridge. Dorsal shield sparsely clothed with minute setae and four pairs of slit-like depressions; with a pair of long, strong setae near the posterior margin (Pl. III, 6).

Gnathosoma. Gnathosoma as in adult (Pl. III, 6).

Legs. Legs similar to those of female, but femora not as much enlarged and pretarsi of legs II, III and IV with irregular, flower-like caruncle (Pl. HI, 5 and 6).

Type specimens. The holotype female, slide 119-26, and the allotype male, slide 119-14, plus a series of paratypes, representing all stages herein described are deposited in the collection of the Chicago Academy of Sciences. Paratype series, representing all stages except the larva, will be deposited with the following museums: The Chicago Natural History Museum; The United States National Museum, Washington, D. C.; The British Museum (Natural History), London, England; Museum National d'Histoire Naturelle, Paris, France; Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium; Universitetets Zoologiske Museum, Copenhagen, Denmark; Rijksmuseum van Natuurlijke Historie, Leiden, Holland; Riksmuseum, Stockholm, Sweden; Natal Museum, Pietermaritzburg, South Africa; and the South Australian Museum, Adelaide, South Australia. All specimens, designated as types, were taken from a single tree-hole population.

Type locality and habitat. A large basal tree hole in a basswood tree, *Tilia* sp., in Lake Avenue Woods, a Cook County Forest Preserve, 2.5 miles north of Des Plaines, Illinois at the junction of County Route H and U. S. Route 45.

Metagynella parvula is very similar to *M. paradoxa*, but the two species may be distinguished from each other on the basis of several characters. In *M. parvula* the constriction of the sternal shield, between coxae IV, averages 12μ and rarely approaches 15μ ; the adanal setae are on line with the middle of the anus and are comparatively close together, averaging 21μ distance from each other and rarely exceeding 23μ ; and the first pair of setae behind the female epigynial shield are comparatively close together, their distance from each other usually being less than half the greatest width of the epigynial shield.

In order to compare *M. paradoxa* with *M. parvula*, in the absence of actual measurements of the former species, measurements were made

from the drawing of the type of *M. paradoxa*, arbitrarily fixing the distance from the anterior edge of the sternal shield to the posterior margin of the epigynial shield at the mean for *M. parvula* and scaling other measurements accordingly. By this method, the sternal constriction of *M. paradoxa* was estimated to be approximately 22.5μ wide or almost twice the average of *M. parvula*. The distance between the adanal setae was estimated at 30μ , almost one-third greater than this same measurement for *M. parvula*. In contrast to *M. parvula*, the adanal setae are on line with the anterior margin of the anus. The distance between the first setae behind the epigynial shield is more than one-half the greatest width of that shield, but this was also found to be true of a few specimens of *M. parvula*.

The most reliable character for separating the two species is probably the positions of the adanal setae in relationship to the anus. However, the width of the sternal shield constriction and the distance between the adanal setae also appear to be stable characters. The distinctions between these two species are, admittedly, quite fine, but it is thought that more distinctions will probably be found when time permits a more exhaustive study of Berlese's type and other specimens from the vicinity of Pisa, Italy.

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Trouessart, E. and Antonio Berlese

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PLATES I - III

PLATE I

1. *Metagynella paradoxa* Berlese, ventral view of female. (Drawing by Gorirossi).
2. *Metagynella parvula* new species, ventral view of female.
3. *M. parvula*, dorsal view of female.
4. *M. parvula*, ventral view of male.
5. *M. parvula*, dorsal view of male.

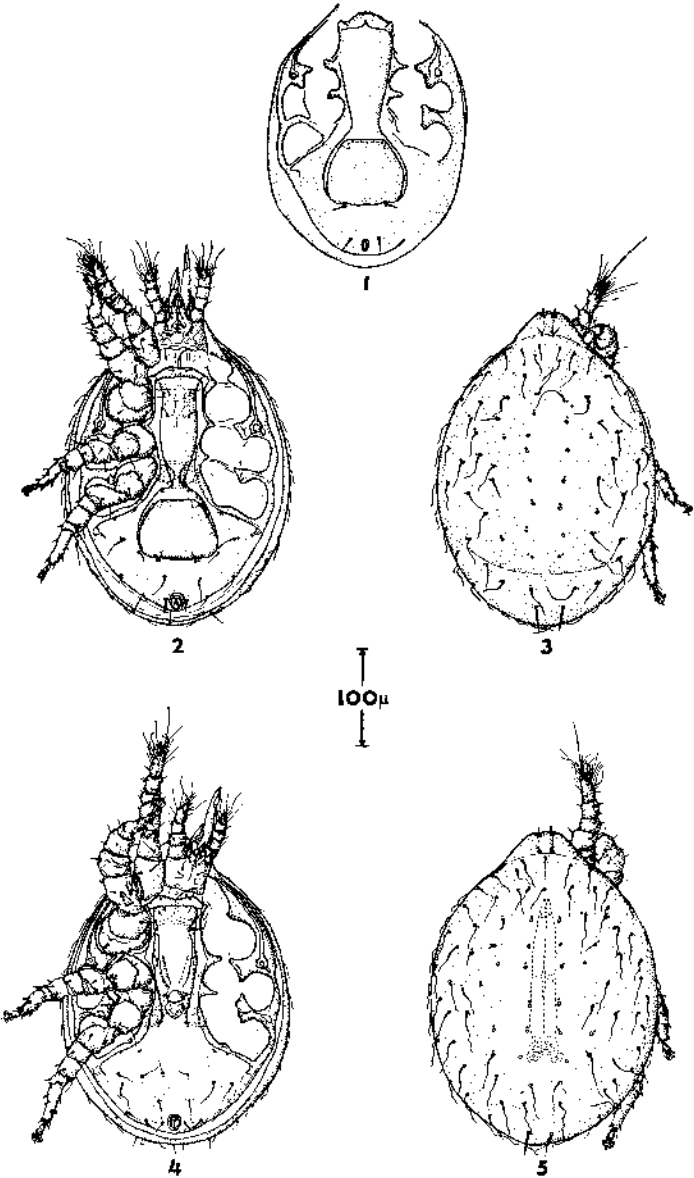


PLATE II

Metagynella parvula

1. Gnathosoma of female, ventral view, chelicerae removed.
2. Anus of female.
3. Genital region of male.
4. Chelicera of female, lateral view.
5. Tritosternum of female.
6. Femur of left leg II of male, ventral view.
7. Sterni-genital region of female.
8. Gnathosoma of male, dorsal view, showing tectum and salivary styli.
9. Tarsus I of female.
10. Dorsal hood of female.
11. Tarsus II of female.

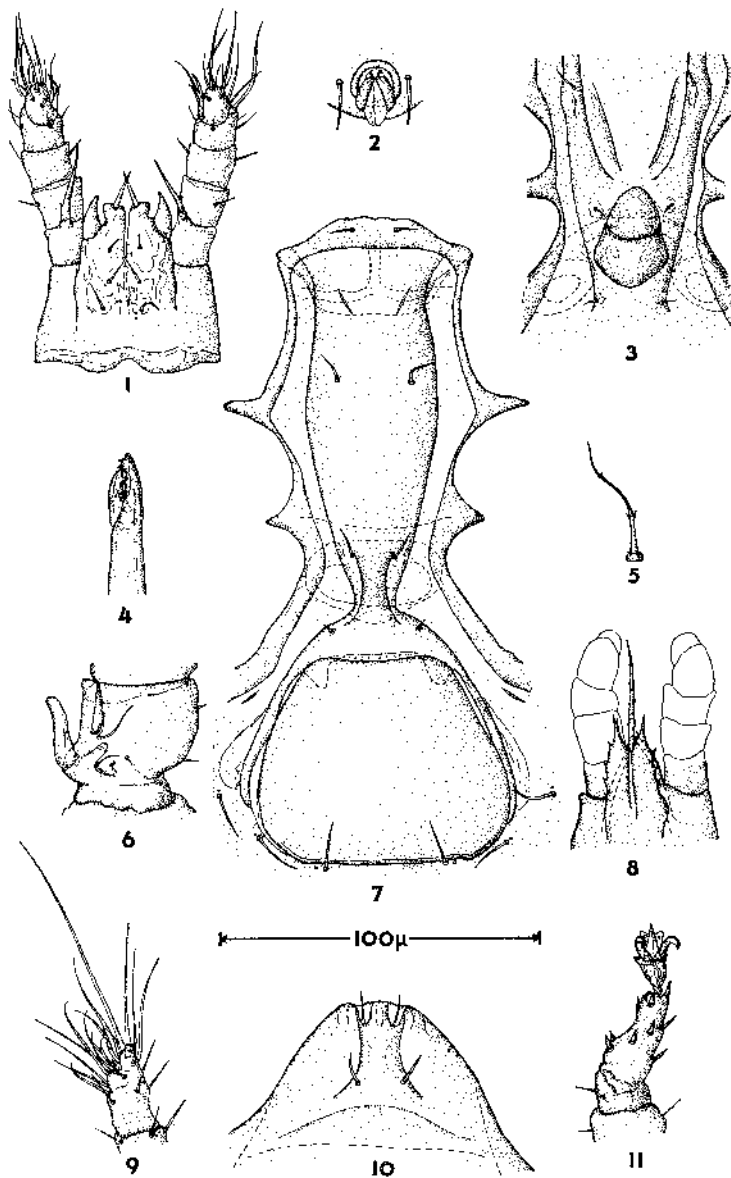
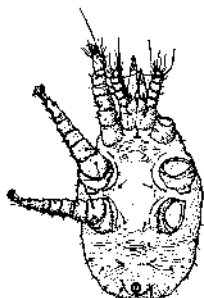


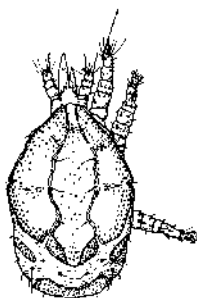
PLATE III

Metagynella parvula

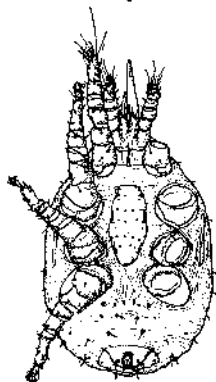
1. Larva, ventral view.
2. Larva, dorsal view.
3. Protonymph, ventral view
4. Protonymph, dorsal view.
5. Deutonymph, ventral view.
6. Deutonymph, dorsal view.



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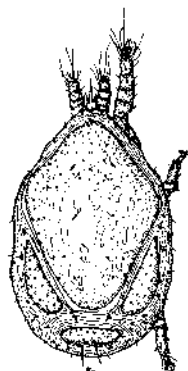


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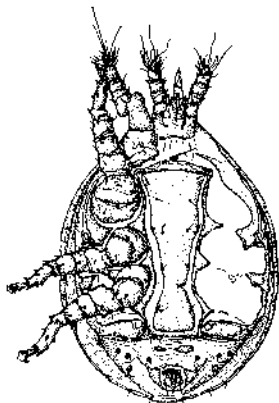


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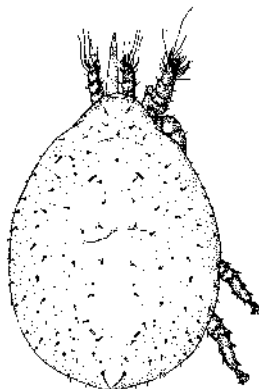
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